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The chief purpose of this publication is to distribute information on aeronautics to the flying personnel in the Regular Army, Reserve Corps, National Guard, and others connected with aviation.

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THE FORTHCOMING STRATOSPHERE FLIGHT

In a radio address delivered over the National Broadcasting Company Blue Network on Saturday evening, April 20th, on the subject of this year's National Geographic Society-Army Air Corps Stratosphere Expedition, the Hon. George H. Dern, Secretary of War, said:

"Since the earliest times the War Department has handled many affairs far removed from the business of fighting or preparing for war. With the establishment of Army flying, opportunities to cooperate with other departments which do not possess a flying service have greatly increased the number of instances where the War Department has stepped out of its usual role.

Man first achieved flight in a heavier-than-air machine in 1903, and this conquest of the air has, during the short years which have since elapsed, come to be of such tremendous significance to the United States Army that its influence enters into our every major project and plan. Notable efforts have been made, recently, to extend the realm of heavier-than-air operations into the stratosphere. These efforts have been attended by many of the uncertainties which handicapped pioneer flights into the (troposphere) lower regions of the air.

The characteristics and capacities of large stratosphere balloons, such as have been used in several high altitude flights both here and abroad, offer especial advantages for obtaining the knowledge of the upper regions of the air so essential to a general utilization of high altitude flight by heavier-than-air machines. Since airplanes comprise the principal equipment of the Army, we are very much interested in securing sufficient knowledge to enable them to operate efficiently at very high altitudes. To this end the Army Air Corps cooperated with the National Geographic Society last July in making an exploratory flight into the stratosphere. Major William E. Kepner and Captains Albert W. Stevens and Orvil A. Anderson, Air Corps, made this carefully planned and well executed flight and were well on the way to attaining a splendid success when unfortunate mishap overtook them at an altitude of 60,613 feet, where the fabric of the great balloon ruptured and caused the balloon to descend.

In the course of the descent these three heroic aeronauts displayed their mettle by making every effort to effect a safe landing to save the valuable equipment and the data which had been obtained. Despite the fact that the failure of the balloon fabric became progressively greater and the balloon gained momentum in its descent, all three men stayed with the balloon and continued to do everything possible to retard its fall until complete collapse of the great bag compelled them to jump with their parachutes to save their lives. For their distinguished services, foresight and judgment displayed in this flight, the President awarded to Major Kepner, Captains Stevens and Anderson the Distinguished Flying Cross.

The War Department has kept in operation, through the past years, a small nucleus of lighter-than-air activities, although appropriations have barely permitted doing so. It is a satisfaction to me, personally, to know that this policy made possible the Department's cooperation with the National Geographic Society last year and will permit us again to join with them in a second effort to be made next June. Had it not been for the continued research and experimentation by the Army Air Corps in this branch of aviation, the Army would have been unable to undertake these important missions. The lighter-than-air personnel of the Army may well take pride in their accomplishments in the face of numerous handicaps. One reviewer has stated that in aviation the balloon has always served as the trail-blazer for the airplane.

The crash of the gondola of last year's stratosphere balloon destroyed many of the instruments and much of the data that had been obtained. However, much worthwhile knowledge was secured notwithstanding, and the aeronauts themselves gained invaluable experience. Their observation of the functioning of the instruments prior to the mishap indicated that, provided in this new attempt a safe landing can be effected which will preserve intact the records made by all the instruments carried, the data thus made available will yield the knowledge which will enable a worthwhile further advance in the conquest of the upper air.

It is to be regretted that Major

V-6777, A.C.

Kepner, who made last year's flight, is unavailable this year. He desires to enter the Air Corps Tactical School next fall, and the transfer of his important duties at Wright Field to his successor will prevent his participation in this year's stratosphere flight. However, the other two members of last year's team, Captains Stevens and Anderson, are available and will make the flight next June. Assisting them as alternate pilot and ground control and meteorological officer will be Captain Randolph P. Williams, Air Corps, another able and experienced officer.

The services of these experienced and highly qualified airmen assures the highest skill and ability as ponderable factors making for success in this new effort. In addition, as a result of the studies which have been made of the causes of the structural failure of the balloon used last year, this new balloon will be of improved design and stronger construction. It will, I am told, be equipped with webbing suspension bands instead of ropes and have two gas valves each of the size of the single valve used last year. As a special safety measure, Lieut.-Colonel Edward L. Hoffman, Air Corps, will equip the gondola itself with a huge parachute of his own design, arranged to lower the gondola in safety in the event of accident to the balloon. And for the greater safety of the airmen, the National Geographic Society has procured helium for use in the next flight instead of hydrogen, which was utilized previously.

Many scientists throughout the United States have placed valuable data at the disposal of the Scientific Advisory Committee for the flight, and many Army personnel are cooperating with the officers who are to make the flight in order that everything may be done to assure success. Among the factors which may be expected to contribute to success are the notable prior achievements in similar lines.

And so we witness the unceasing efforts of our brave pioneers to open up new vistas of accomplishment. The past flights of manned balloons into the stratosphere have demonstrated their value in adding to our knowledge of this little known realm.

In closing I desire to express to the officers and members of the National Geographic Society the War Department's appreciation of the valuable efforts they have sponsored and are about to sponsor to obtain scientific knowledge calculated to advance the art of flying. It is an honor for the Army to be associated with this distinguished Society in such a notable work in behalf of the advancement of the world's knowledge.

I extend my best wishes for success to the Society, to the Air Corps and to the officers who are to make the flight.

I expect to be present to witness the start of the stratosphere flight from Rapid City, South Dakota, next June, and to talk with the officers who will make the flight. To those of you who will not have this opportunity I desire to introduce these officers and to let them, at this time, say a few words to you of their hopes and plans. Captain Stevens, in addition to making last year's National Geographic Society-Army Air Corps Stratosphere Flight, has made high altitude airplane flights and, as early as 1923, made a parachute jump from 24,206 feet. Captain Anderson is one of a limited number of officers holding all four flying ratings bestowed by the Army Air Corps and is highly qualified in air navigation. Captain Williams also holds all four flying ratings and is an expert meteorologist. These officers will speak to you from Wright Field, Dayton, Ohio, where they are now busily preparing for their flight in June."

CAPTAIN STEVENS' REMARKS.

It is very kind of the Secretary of War to show so much interest in our coming stratosphere flight and to give so much attention to it. Our work so far has involved long hours of preparation, but we have been fortified by the knowledge that men in laboratories all over the country have been putting in just as long hours as we have. Several scientists have already arrived and have installed their instruments in the gondola. These instruments have been taken out and have been returned to their various makers for last minute adjustments and trial. The Cosmic Ray Apparatus of the Bartol Research Foundation, and the spectrographs of Bausch and Lomb have been placed. Today Mr. Hineline arrived with the six Factograph Cameras that will record elevation, and temperature, and nearly a score of other things. Our Fairchild Aerial Cameras are ready, and are under prolonged test. This coming week, Mr. Morris, of the National Broadcasting Company, will install his high frequency radio transmitter. Our own Signal Corps Laboratory at Wright Field is building two extremely short wave transmitters that will broadcast on wavelengths of approximately 5 meters and 2½ meters. The Bureau of Standards has finished the special containers, made of glass, protected by metal that will be used to trap samples of the upper air. The Bureau has also completed a new electrical resistance thermometer.

All of these instruments are to go in the Dowmetal gondola that now is suspended in our laboratory here at the Materiel Division of the Air Corps. Although this year's gondola is a full nine feet in diameter, there will not be any space to spare when two of us get inside of it for the June stratosphere flight. More than four tons of lead in the form of tiny shot known as lead dust

will be used to keep the balloon from shooting skyward like a rocket. The ascent must be closely controlled in order to secure the most accurate readings of the many instruments.

Like a voyage to the lower depths of the sea, a flight like this needs the most elaborate and careful preparation, because the conditions under which we will work will be so far different than those on the surface of the earth.

Captain Anderson and Captain Williams are leaving at 4 o'clock tomorrow morning by airplane for St. Louis, where at 7 o'clock an 80,000-foot balloon will be ready for flight. At the present moment this balloon is being filled at Scott Field, Belleville, Ill. Weather permitting, a flight will be made tomorrow in the smaller balloon for the purpose of testing certain scientific apparatus, and on the completion of this flight Captains Anderson and Williams will bring the apparatus and data back here at Wright Field.

CAPTAIN ANDERSON'S REMARKS

To be chosen as a member of the crew of this year's National Geographic Society-Army Air Corps Stratosphere Expedition is an appreciated honor.

Since last summer's flight, much has been done in design, construction and method of operation to add to the safety of the next stratosphere project and to simplify piloting procedure. The substitution of helium, which is non-inflammable, for hydrogen as a lifting gas will entirely eliminate the hazard of explosion. The stronger fabric being used this year, together with an improved method of fabric folding, will diminish greatly the possibility of any bag failure. However, a large parachute is being installed on the gondola as an additional safety factor to the equipment and crew. Ballast in the form of lead dust will be discharged by a simple operation of an electric switch, and such of our equipment as will be used for ballast purposes can be released by cutting individual wires, permitting such equipment to float on parachutes, harmlessly, to the ground. There will be complete duplicate gas valve installations for releasing the lifting gas. These valves can be operated jointly or separately at any altitude.

Through these and other improvements, we believe that, despite the immense size of this craft, our piloting problems have been made quite simple and successful flight assured.

We look forward to the coming expedition with expectation of a very profitable and interesting experience.

Dr. Gilbert Grosvenor, President of the National Geographic Society, who spoke with the Secretary of War from the Army War College, after expressing the pleasure of the Society over being again associated with the Air Corps in an expedition to explore the mysteries of the upper air, enumerated various expeditions sponsored by this Society across all the continents and all the seas.

"The stratosphere," he said, "is lifeless, lonely, and desolate. Yet only there may some emanations from the outer space be recorded in their full intensity Such are cosmic rays and the ether waves which bring our words to you by radio.

Our problem is to lift a workshop and complicated tools, along with men who can live and work, to places in space which only a few years ago were deemed inaccessible. This workshop is a hollow ball 9 feet in diameter, made of metal lighter than aluminum, housing more than a ton of scientific instruments. To lift this workshop to its lofty position requires a balloon so large that three acres of rubber cloth were needed to fashion it."

After pointing out that the forthcoming stratosphere flight will mark the first time in history that a balloon inflated with helium instead of hydrogen will ascend into the stratosphere, Dr. Grosvenor stated that the wonder gas, helium, was first discovered in workable quantities in 1903, when a well that was being drilled in Kansas came through with a strong flow of natural gas. Great was the rejoicing in the village nearby- the discovery of the natural gas being hailed as the harbinger of great prosperity - but the joy was premature and short lived, for the goose that was about to lay the golden egg seemed to die before the egg appeared. To the consternation of all concerned, the gas was found to be non-inflammable and therefore worthless as fuel. It would not burn. Samples of the gas were sent to the University of Kansas for examination in order to discover the cause of its astonishing behavior. There it was found that the gas would not burn because it had a content of two percent of helium.

Natural gases containing helium have since been discovered widely distributed over the United States, but only a few localities have been found in which the quantity of helium in the natural gas is large enough to pay for the expense of extracting it. Thus far the United States is the only country in the world in which gases bearing helium in sufficient amount for profitable extraction to float enormous balloons and airships has been found.

By complicated and expensive machinery, the helium is removed from the natural gas as it flows from the earth, and then the remaining 98% of the gas is pumped through pipe lines to a market perhaps thousands of miles distant.

Our balloon has been made larger than any heretofore constructed in the hope that it may attain the utmost possible altitude, for each mile of height increases the scope and value of observations.

TORSIONAL VIBRATION INVESTIGATION TO PROMOTE SAFETY IN FLIGHT

By the Materiel Division Correspondent

During the past several years, the Air Corps Materiel Division, Wright Field, has been active in the study of crankshaft torsional vibration in both in-line and radial engines. The ill effects of resonant vibrations are well known when they affect instrument readings, vibrate fuel lines and cause fatigue failures of engine mounts. However, when resonance occurs between the moving engine masses and the propeller, very little effect is noticeable to the pilot. For this reason, it is possible to operate an engine unknowingly in a resonant period for long intervals of time. The result is galling of the propeller cones and, in extreme cases, failure of the crankshaft or propeller because of the very high stresses set up.

It was necessary, before a remedy could be found, to develop a convenient means of recording the vibrations of the crankshaft while the engine is under load comparable to that of a propeller in the air. The development of a suitable instrument has covered a period of six years, during which time many possible methods were considered or tested. The final result is the Materiel Division Torsiometer now used by the Army and Navy and the large manufacturers of Air Corps engines. This device consists of a driving member adapted to engage the starter jaw of the engine, and a spring-driven flywheel whose rotation is sensibly constant. The relative torsional motions of the driving member and the constant-speed flywheel are utilized to actuate a stylus which rotates with the flywheel. The stylus thus draws a graph of torsional displacement vs. time. These records reveal the frequency and amplitude of torsional vibration and enable accurate determination of the critical resonant range of the crankshaft.

It has been learned that an in-line direct drive 6-throw crankshaft, such as in the Liberty engine, has 3 dangerous resonant periods, all having the same frequency. In the case of the Liberty, these were 1000 R.P.M., 1330 R.P.M. and 1710 R.P.M. At 1000 R.P.M., there are six vibrations; at 1330, 4½ vibrations, and at 1710, 3½ vibrations per revolution. The frequency in all these periods is 100 vibrations per second.

In the case of a direct drive 9-cylinder radial engine, such as the Wasp, it was learned that a dangerous resonant range exists approximately from 2200 to 2800 R.P.M. The frequency is 165 vibrations per second at 2200, and 210 vibrations per second at 2800 R.P.M. It is probable that the truly resonant period is about 2500 R.P.M., at which speed the frequency is 187.5 vibrations per second. In the Liberty engine, crankshaft failures occurred when operating near the 1330 and 1710 R.P.M. periods, while several failures have occurred in Wasp engines with flying propellers, at 200 R.P.M.

It has been determined that the propeller used has a vital effect on the resonant range, some propellers on the Wasp engines reducing the lower range from 2200 to about 2000 R.P.M. It is also found that all engines employing reduction gearing have lower resonant frequencies than do direct drive engines of the same type. In some of the geared engines this reduction of frequency was great enough to remove the resonant range entirely out of the cruising and full throttle range utilized in the air. In others, the resonant period was unfortunately placed where it was necessary to cruise for extended periods with the crankshaft in torsional vibration. As a result of this, cone galling and cracking of propeller blade shanks were encountered, with some actual failures chargeable to this cause.

The latest development is a remote control torsiometer, which could be operated by a pilot while flying. With this device it is believed the first actual flight records on an airplane engine have been obtained by the Air Corps. This instrument is being refined and will prove a very useful device, being much more convenient as well as faster and safer than the use of the original instrument.

This study has already resulted in making engines much safer in flight, and as a result of the knowledge obtained a very successful damping device has been developed by one manufacturer which prevents torsional vibration at any engine speed. In other cases, suitable changes in rigidity of crankshafts have removed dangerous periods to little used speed ranges and thus minimized danger of failure. Speed limitations have been placed on still other types in which no other remedy has yet been found. The constant aim has been to make Air Corps engines secure against mechanical failure due to crankshaft resonance in order that the pilot's confidence in his engine may be justified.

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THE BUILDING PROGRAM AT HAMILTON FIELD

To complete the building program at Hamilton Field, Calif., $790,250 will be needed, according to Captain Howard B. Nurse, Constructing Quartermaster. His plans include the erection of a Post Exchange, $50,000; Service Club, $54,000; Gymnasium and Theatre, $85,000; Bakery, $17,250; Chapel, $60,000; Public School, $40,000; additional landing mats and paved aprons, $250,000, and sprinkler service, $234,000.

V-6777, A.C.

DETAILED DATA ON MANEUVERS OF SECOND BOMBARDMENT GROUP

The March 15th issue of the News Letter contained an account of the Maneuvers of the 2nd Bombardment Wing in the Fourth Corps Area during January, 1935. The following are some of the detailed data compiled by the Commanding Officer of the Group, Major B.Q. Jones, Air Corps:

Mobilization.

The mobilization plans as prepared by the Groups were followed in clearing the home station, Langley Field. Three weeks were required for the mobilization of the Groups, although it is believed this should be accomplished in one week. To secure better results, however, will require more training in preparing mobilization plans and in carrying them out. Forty-eight hours for a Group to clear its home station should be set as the objective.

Troop Movements.

During the course of the maneuvers, the Pursuit units broke camp seven times each for White and Red, White averaging 3.3 hours and Red 3.7 hours for this operation. The White Bombardment averaged the same as the White Pursuit, although the Red Bombardment was able to improve upon this time, averaging 2.2 hours for breaking camp. It was found that establishing camp required less time than breaking camp, being accomplished in the following average times:

White Pursuit,	2 hours
Red Pursuit,	3.7 hours
White Bombardment,	4 hours
Red Bombardment,	1.5 hours

Note: While there is considerable variation in these times, the actual conditions at the respective camp sites undoubtedly influenced the time element.

While the above times for making and breaking camp obtained, it is interesting to note that for the White Pursuit Squadron no time was lost on this score, as duplicate camp equipment was provided and an advance echelon had camp made when the unit arrived, while a rear echelon broke the old camp after the departure of the planes. It is evident that this is a highly desirable procedure where the additional camp equipment can be made available.

Operations.

It was found that the Pursuit required an average of one hour to prepare for each operating mission, that is, refuel and clear airdrome, while the Bombardment required an average of two hours. It was found that Pursuit patrols sent out ahead to screen the Bombardment usually made the first contacts with each other. Usually the Bombardment was attacked prior to reaching its assigned objective.

Bombing missions were carried out at various altitudes between 2,000 and 10,000 feet. All bombardment missions (24) reached their objective. Three Bombardment planes per flight and nine per squadron - in the air - were found to be the most satisfactory formations. Sixteen planes per squadron, to give two flights of six in the air, are considered too many. Six-plane flights, with two elements of three planes each, make a more flexible squadron in the air but greatly increase the difficulty of handling the squadron formation. The added maintenance and ground personnel required make rapid shifts of base more difficult.

Camera guns were used to determine results, and 194 Bombardment planes were hit by Pursuit. Auxiliary tanks for Pursuit were found necessary for effective performance of missions. Therefore bombs, if carried, should be on wing racks.

For Pursuit squadrons, the 18 planes in the air, with three flights, each of two 3-plane elements, was found most satisfactory. A total of 121 Pursuit planes were hit by Pursuit and 76 by Bombardment. The Pursuit used the open "Vee" formation for search and the "String" formation for attack.

For Bombardment-Pursuit defensive, the best formation was found to be a 9-plane Bombardment formation with three 6-plane Pursuit flights above them, each in "String" formation. Due to their greater speed, these Pursuit flights fishtailed, and this made for a more effective protection for the Bombardment below. Five offensive Pursuit missions failed to contact the enemy. On two of these, no enemy planes were in the air.

When Bombardment airplanes were attacked while they were on the ground, the gun cameras mounted in the plane were manned. Also, both Bombardment and Pursuit mounted spare gun cameras on fence posts. By this "fire" from the ground, 237 hits were made against airplanes in the air as against 43 hits made against the airplanes on the ground. This would appear to indicate a superiority in daylight combat for the planes on the ground as against those attacking from the air. However, had the planes in the air used bombs against machine guns, quite a different result would have been obtained. Furthermore, in a maneuver between two forces from the same Groups, with identical radio and an intimate knowledge of each other's methods and habits, far more readiness to resist attack is to be expected than in actual warfare. In each Bombardment squadron three airplanes were kept on the alert, and in each Pursuit squadron from one to six airplanes.

Pursuit patrols were used as Observation. One radio plane was used above

large formations to warn of approach of enemy and inform as to enemy's formation and movements.

Transport Airplanes.

Transport airplanes were used, in part, to make moves and carried loads as given below:

	(a) Passengers	(b) Load
C-4A	Pilot, Co-pilot and 12	3000 lbs.
C-12	Pilot and 4	1000 "
C-14	Pilot and 6	1600 "
C-24	Pilot and 6	1600 "
C-27	Pilot, Co-pilot and 10	2400 "
C-27A	Pilot and 10	2400 "

It was determined to be desirable to have transport airplanes capable of carrying ten men and their tents, baggage and two days' rations, also that the Transports should be equipped with controllable pitch propellers, slots and flaps to facilitate use into and out of small fields. In addition to the heavy Transport airplanes, each Group should have one light, very fast transport for urgent missions involving speed, such as supply of an emergency repair part or transfer of key personnel.

The following faults were found with Transport airplanes used in the maneuver:

C-12, cramped and uncomfortable for both passengers and pilot.

C-14, cabin poorly ventilated.

C-27A, poor seating arrengement (side benches).

All, except C-27 and C-27A, doors too narrow.

Trucks.

Due to shortage of 1½-ton trucks, a number of ½-ton were used to make moves between camps. The ½-ton truck does not lend itself well to loading, takes extra truck drivers and, due to the greater numbers required, makes an unwielding train on the road which is difficult to control. A 200-mile move by truck was found to be the maximum that could be accomplished in one day, allowing for breaking and making the camp.

Camps.

The best arrangement for camp placed the tents on the prevailing wind side of the flying field and, therefore, out of the dust. The tents and airplane parks were kept off the prolongation of the best runway. Airplane parks were kept at least 150 feet away from tents and down wind to avoid dust in the tents. It is to be noted that the commercial use of the airports utilized in the maneuver prevented a dispersed parking of airplanes such as would be used under active service conditions.

Camp Procedure.

A two-day ration reserve was maintained, as far as possible. Perishable articles were purchased locally and used at point of purchase.

Straw mattresses made bulky, lumpy bedding rolls and the men were cold sleeping on them in temperatures as low as 20°. The best bedding, both as a roll for transportation and for comfort, is the Sleeping Bag, Type A-1, with pneumatic mattress.

Paper plates were found to be a desirable messing convenience. Paper cups probably will be found equally convenient.

To reduce items of mess kit, a combination fork-spoon is recommended, that is, fork on one end and spoon on the other.

Film Development.

Nonavailability of running water and lack of an analysis to determine presence of injurious mineral substances in the water were great handicaps in developing gun camera film. The drying rack carried was not of adequate size. Low temperatures of weather required a means, which was lacking, of keeping developing fluid at best temperature. Special measures had to be used to prevent this fluid from freezing at night. As a rule, film was developed within 24 hours.

Communications.

Radio Set Type SCR-187 functioned excellently as a portable ground radio set when properly employed.

The maximum reliable range of the SCR-187 set ground to ground, when operated properly and with a suitable antenna is a mathematical function of the frequency used.

(a) Daylight on C.W.

Band	6640 KC Band	3560 KC Band	4300 KC Band
Reliable Ranges (miles)	0-50;300-1000	0-200	0-500

In the above table 0-50, etc., indicates that communication was continuous under average conditions at all points from zero to fifty miles away, etc.

(b) Night on C.W.

Band	6645 KC Band	3560 KC Band	4300 KC Band
Reliable Range (miles)	0-30	0-200	0-100

Both the tables in (a) and (b) above assume clear channels with fair weather conditions. In very bad weather these distances were somewhat reduced, while on excellent days the maximum distances are too modest. For example, the Wing Station on the ground at New Orleans worked successful schedules with Langley Field on 4300 kcs., a distance of 930 miles, which is nearly twice the maximum distance stated for that frequency in table (a). Also in the 6645 band, voice communication works excellently throughout practically the whole ranges listed in

table (a) for that frequency. This is not mentioned in the tables, however, because it is believed that voice should not be used in ground stations. Tone modulated signals were used on all frequencies for test with satisfactory results; CW is superior, however, due to narrower frequency band required, with consequent sharper tuning, greater distances obtainable with less power drawn from the source of power supply.

The only frequencies assigned were 3520 kcs. and 3650 kcs. During the late afternoon, and especially Sunday afternoons, these frequencies were completely jammed by amateur stations in the vicinity in which the Wing operated.

Where the distances involved are considerable, recommend the 4000-4400 kcs. band for daytime use. At distances where communication is desired to all points within a circle of 80 miles radius or less, recommend that the 400-800 kcs. coils be procured and used. These would provide continuous reliable communications for the shorter ranges, day and night.

For day use, 4300 kcs. was found to be the best frequency for the type of maneuver just engaged upon. For night use, the frequencies 2900-3500 kcs. possessed good carrying qualities, but no one frequency could be found that was clear at all times at all localities. The 3560 kcs. frequency was used most extensively, although we were considerably troubled by interference by amateurs.

Due to the high current drawn by the SCR-187 dynamotor, it would have been impossible to operate the transmitter more than a very few minutes when operating directly off the battery while it was not receiving a charge when, as a matter of fact, the Air Force Headquarters were separated from each other or from the Wing Hqrs. by distances varying from about 50 to 100 miles, and at least hourly schedules had to be kept.

Field orders and other long messages had to be handled by radio, due to the fact that no other means of communication was available. Schedules were also kept with Maxwell Field and, on some occasions, with Langley Field, so that on busy days the operation of the Wing Station installed in the OA-4A Amphibian airplane approached six hours of actual operations. Obviously, it was impracticable to run the engines of the airplane on the ground for the entire day's operation, so it was necessary to carry some type of power supply along for the operation of the ground net. PE-AA-49 power units not being available, the only power units on hand were the PE-CL-41 units. These were taken along, transported by truck convoy. As the permissible current to be drawn from the low voltage side is small, the dynamotor SCR-187 set could not be used, but by using the maximum high voltage possible by cutting out all resistances and by speeding up the power equipment engine, power was drawn directly from the PE-CL-41 for the SCR-187 transmitter. Even then the receiving set was a continuous drain on the airplane battery which after a day or two of continuous operation would be dead. But as it was necessary to continue operations, the PE-CL-41 was again mustered into service. The leads on the battery side of the airplane voltage regulator control box were disconnected, and connection was made through the main line switch and a small ammeter to the low voltage side of the PE-CL-41 power unit, thus keeping a continuous charge of about 14 amperes into the airplane battery which was ample to keep the battery in excellent condition. When battery was fully charged, the main line switch was simply snapped off. A study of this circuit reveals that if the charging voltage suddenly fails for any reason, such as the stopping of engine of the power equipment, the voltage of the battery will be directly across the generator windings. Thus for safety to the generator, this circuit should be connected through a sure fire reverse current cut-out relay. The relay in the control box was not used for this purpose, due to unreliability of functioning. It was deemed more advisable to closely watch the charging current and open the main line switch if current started to decrease noticeably. With above modifications, power supply was adequate, except for the weight and bulk of the power equipment units, type PE-CL-41. Even the power equipment, type PE-AA-49, is too heavy (225 lbs.) for this purpose.

It is believed that a power equipment consisting of an E-3 airplane generator, equipped with a cooling fan and driven by a moderately high speed gasoline engine of just sufficient weight and size to turn the generator at 2750 r.p.m., its rated speed, should not, if properly designed, weigh more than 120 pounds. The cost of design of such equipment should not be material, as the radio set is entirely inoperative without a power supply which can be easily transported by air.

The power equipment units, type PE-CL-41, failed on several occasions, due to breaks in fuel lines, ignition difficulties, carburetion trouble, and the breaking down of the filter condensers across the output. The present condensers are not designed to withstand sufficient transient peak voltages, and frequently break down under the rated load of the units, although the remainder of the unit is built to withstand a considerable overload.

No maintenance difficulties were encountered with the three SCR-187 sets used in the Wing net. The set should be both operated and maintained by a radio operator and mechanic of better than average radio knowledge of tuning and

coupling of curcuits. With that stipulation satisfied however, no difficulties of any nature were encountered.

In Bombardment airplanes the maximum reliable range of the SCR-183 radio set was:

1. 3100 KC band - 50 miles.
2. 6000-7000 KC band - 30 miles. In this band, operation is nearly always possible beyond the first skip space, sometimes for hundreds of miles. Due to the apparent variation of the length of this first skip space, however, we have a distinct aversion to listing a greater reliable distance than that listed above for this band.

In **Pursuit** airplanes it was: Fifteen miles, if transmitting plane is in the air. If on the ground, five miles.

This is satisfactory only for command purposes within a Group formation, but not satisfactory for command communications in a wing formation, or, what is more important, for communication between a Group and its detached units, such as patrols, observers, etc., in the air, but not in the same formation. For this communication the power output of the BC-180 transmitter should be increased. It must be pointed out also that when a Group is operating from dispersed airdromes there is absolutely no communication between the Group Headquarters and the separate squadrons.

It is recommended that the power output of the BC-180 unit be increased, and that on airplanes such as Bombers, where larger fixed antennae can be mounted, that lower frequencies be used for greater reliability, that is, frequencies around the 3000 kc. band.

No difficulties were experienced in using the Department of Commerce communications facilities for disseminating weather data. Lack of practice was evident in using two-way radio communication. The radio beacons were utilized without difficulty.

Servicing of Airplanes.

Drums were satisfactory for reservicing Bombardment, but were too slow for Pursuit, unless extra pumps are furnished. This, however, would entail use of additional personnel. Drums should be spotted as near planes as possible, or vice versa, to save manhandling of drums.

Supplies and Equipment

(1) Equipment needed but not taken:

Cans, G.I.
Buckets, G.I.
Typewriter, Portable, (1 per Sq.)
Insufficient number of camp cots taken. Frequent breaks in the wood used caused this shortage.
Brighter type of lantern was needed, similar to the gasoline lantern types. (Oil lantern unsatisfactory; no night maintenance in the field could be performed with this type lantern.)
Socket wrenches and box wrenches (at least one set per flight needed.)
Magneto gear puller (1 per squadron).
Suitable jack (1 per squadron).
Wrench for hold-down nuts between cylinder and block (P-6E).
24-inch Stillson wrenches.
Supply tent for White Pursuit Squadron.
Extra red lanterns.
Mallets for driving tent stakes.
Carpenters tools, hammer, saw, nails.
Rakes (2 per squadron).
Flashlights, 2⅝-inch lens, complete.
One extra 1½-ton truck per squadron.
Cross-country bag or some different type of container for enlisted men's personal equipment (Barracks bag unsatisfactory).

(2) Supplies needed but not taken:

Cylinder hold-down studs (Bombers).
C-2 Strainer (Bombardment).
Tail wheel assembly (B-6).
Light lubricating oil for wires and propellers.
Extra axe handles (at least one per axe).
Spark plugs (should be continuously supplied to a unit in the field).
Extra rope.
Writing paper (larger supply for each Sq.Hqrs.)

Personnel:

Order of priority of assignment of enlisted men to --

(1) Wing Headquarters.
(a) Wing Sergeant Major, Wing Operations Sgt. Major, Message Center Chief, 1st Sgt. Wing Hq. Det., N.C.O. in charge of Wing Truck Train, Truck Driver - 1 man.
(b) Chief Radio Operator, N.C.O. in charge of Wing Radio Net. - 1 man.
(c) Clerk, typist, truck driver - 1 man.
(d) Assistant N.C.O. in charge of Truck Train, Assistant Radio Operator, Mail Clerk, Truck Driver - 1 man.
(e) Stenographer, typist, messenger.
(f) Wing barber and orderly.
(g) Crew Chief, Wing Hq. Radio airplane; (not considered in order of administrative importance) - 1 man.

(2) Group Headquarters -
(a) Group Operations Sgt. Major - 1 man.
(b) Group Sgt. Major - 1 man.
(c) Engineering Inspector, truck driver - 1 man.
(d) Radio Inspector and Operator, truck driver - 1 man.
(e) Armament Inspector - 1 man.
(f) Assistant Engineering Inspector, truck driver - 1 man.
(g) Clerk, typist - 1 man.
(h) Clerk, messenger, truck driver - 1 man.

(3) A Squadron -
(a) Line Chief - 1 man.
(b) Crew Chiefs and Assistants - 1 man per engine.
(c) 1st Sergeant - 1 man.
(d) Mess Sergeant and Cooks - 4 men
(e) Operations and Administrative Clerks - 2 men.

V-6777, A.C.

(f) Armament - 1 man
(g) Radio - 2 men
(h) Supply - 1 man
(i) Ground echelon - varying number of men, depending on number of trucks required. In Pursuit, these men greatly overlapped with crew chiefs, cooks, etc.

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REHEARSAL IN GERMANY OF PASSIVE MEASURES AGAINST AN AIR RAID

A report submitted by the Military Attache of the American Embassy in Germany describes the first rehearsal of passive measures against an air raid, recently carried out by orders of the Air Minister. This rehearsal consisted of two phases, first restricted illumination from 10 to 11 p.m., and complete darkness between 11 p.m. and midnight.

During the first phase some 4500 street lamps remained lighted. All windows and apertures in houses, factories and business premises had to be made light-proof with heavy cloth, cardboard or thick black paper. Electric signs and lights in shop windows had to be extinguished, and "light locks," that is, darkened spaces between an inner door or curtain and the outer door, had to be provided to prevent any projection of light from premises illuminated within.

During the second phase the only lighting in the streets was to be had from low-powered blue lights in 1500 selected standards. Head and tail lights on road and rail vehicles had to be covered except for an aperture between 2 inches and 3 inches long and less than an inch deep. Drivers were required to proceed dead slow. All trains within a radius of 50 miles of Berlin were similarly darkened.

From a vantage point on the roof of the Karstadt Building, one could easily recognize the change from full illumination to restricted illumination. With but a very few exceptions, lights in houses and establishments could not be seen, and street illumination became poor due to the reduced number of lights burning. A noticeable reduction in street traffic was also noted during this period, and street railways with their small dim lights were proceeding with great caution.

Witnessing the second phase of the exercise from an airplane flying over the city, it was noted that at 11 o'clock all street lights were extinguished and the city was in complete darkness except from neon lights on high structures in the vicinity of the airdrome, which was kept burning for the safety of the airplanes in the air.

The plane ascended to an altitude of 4500 feet and made several trips over the center of the city and around the city. Although it was a bright moonlight night, it was very difficult to see the city except that by very close and continuous observation one could distinguish the outlines of streets. The belief was expressed that the reflection of the River Spree and the various canals would have been the only means of identification of the city, and had it been a dark night even this would have been difficult. Another means of identifying the territory underneath as being that of a city was the occasional flashes or sparks from the trolley wires, which of course would have shown up more clearly on a dark night than they did on the night of the exercise.

The complete darkening of a city the size of Berlin, such as was demonstrated in this exercise, would make it most difficult, if not impossible, for an air raid effectively to carry out a mission against a particular target in the city.

The most striking feature of the exercise and the thing that impressed all those who witnessed it from the air was the marked degree of discipline which prevailed among the civilian population, as indicated by the absence of lights throughout the entire city.

On the following day an Air Defense Exercise was conducted in one of the air defense districts into which Berlin is subdivided. This district is approximately 700 x 1000 meters and contains a population of approximately 50,000.

The purpose of the exercise was to test the passive air defense means which are organized by the Air Ministry under the name of Luftschutz (air protection). The Luftschutz forces are Police, Firemen, Technical Emergency Service (air defense section), Volunteer Air Defense Force, Medical First Aid Service.

The Police control the Luftschutz forces. In each district they have established an information center into which news of approaching hostile airplanes is reported over the regular telephone system.

At 10:00 o'clock on the morning of the exercise, the information center of the Kreuzberg area (No. 112) received word of the approach of an air raid. Immediately a police car with loud siren rushed through the district as a warning signal of approaching attack. All traffic in the district was stopped and all persons on the streets except police were directed to the nearest dugouts and inhabitants went into their gas proof shelters.

During the air attack and afterwards until the exercise was over, only such movement of traffic was allowed in the area as was occasioned by the activities of the Luftschutz agencies. A flight of light bombers flew over the area simulating an air bombing attack.

Simulating the effects of the bombing, smoke candles were lighted in several houses. Here the fire department went into action. The first aid service rescued several wounded and injured, dressed their wounds and evacuated them to the hospitals. In the streets large holes such as might have been made by a bomb had been prepared. These holes uncovered broken gas and water mains. Overhead high power electric lines were broken and lying on the street. All of these utilities

V-6777, A.C.

were quickly repaired by specially trained squads of the Emergency Technical Service.

Broken walls of certain houses in the area were restored and made safe by other squads of this Service, they being equipped with all the necessary tools, equipment and devices which were carried on special trucks.

Areas and houses which had been gassed were treated with a neutralizing agent by squads of the Volunteer Air Defense Force. These men all wore gas masks and rubber gas proof suits.

Those who observed the exercises were impressed by the following points:

a. The great value of a system of definite procedure prepared for in advance of the bombing attack.

b. The importance of having the proper technical equipment and personnel prepared, trained and properly distributed.

c. The excellent organization of the Luftschutz forces.

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ASSISTANT SECRETARY OF WAR SPENDS SIX BUSY DAYS AT TRAINING CENTER

Arriving at 4:00 p.m., Friday, April 12th, from Hensley Field, Texas, in a Curtiss "Condor" Y-10-30, piloted by 1st Lieut. Townsend Griffiss, Air Corps, the Hon. Harry H. Woodring, Assistant Secretary of War, proceeded directly from the visiting ships hangar to inspect the officers and enlisted men of Randolph Field, who were drawn up in formation around the North Circle in front of the Administration Building, after which he retired to the quarters prepared for him at the Bachelor Officers' Club. After dinner at the Club, he spent the evening observing the student night flying.

Early Saturday, Secretary Woodring began a full morning by attending the reveille formation, setting-up exercises and breakfast formation of the Flying Cadet Battalion before he himself partook of breakfast at the Cadet Mess. He spent half an hour inspecting the flying and academic formations of the flying cadets; then he made a tour of the Primary and Basic Stages, where he inspected the curriculum of flying training, and was later whisked to the School of Aviation Medicine for a hurried visit. At 9:30 a.m., having completed a round of the field, Mr. Woodring left to inspect the outlying fields and was treated to the spectacle of a student flyer crashing through a fence and coming to a rest upside down on the railroad tracks beyond. Fortunately, the crash did not result in any injury to personnel. Returning to Randolph Field at noon, Mr. Woodring lunched at the Officers' Club, and a short time later departed for San Antonio by automobile.

Notwithstanding a day of bustling about, Mr. Woodring, ever on the move, was flown that evening to Fort Worth, where he was scheduled to speak. He returned to San Antonio by rail at 7:00 a.m. Sunday, Lieut. Griffiss having returned with the airplane the night before. Giving no sign of letting up in his activities, he took off with Lieut. Griffiss at 8:00 o'clock for a visit to Forts Brown and Clark, returning to Randolph Field late at night.

Another early breakfast Monday morning was the beginning of Secretary Woodring's busiest stay at Randolph Field. Leaving by airplane at 7:30 a.m., he spent the day inspecting Kelly, Duncan and Brooks Fields, returning at 4:00 p.m., and, following a visit to San Antonio, he spent the evening observing the flood-light and flare landing phases of student night flying.

After inspecting the troops of the Second Division at Fort Sam Houston, Tuesday, Mr. Woodring departed at 9:00 a.m., Wednesday morning for Barksdale Field, La.

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ACTIVITIES OF THE THIRD PURSUIT SQUADRON

Giving a resume of the activities of the 3d Pursuit Squadron, stationed at Clark Field, Fort Stotsenburg, Pampanga, P.I., the News Letter Correspondent first enumerates the commissioned personnel now stationed at this field, viz: Major G.E. Brower, Commanding; Maj. R.J. Platt, Flight Surgeon; Captain C.W. Ford, Operations and Executive Officer; Lieuts. W.D. Old, C.W. Davies and F.L. Fair, Flight Leaders and, occupying various other positions, Lieuts. T.W. Steed, N.H. Ives, P.B. Wurtsmith, W.M. Morgan, J.H. Bundy, W.C. Morse, H.W. Bowman, J.E. Barr and J.B. Zimmerman. He then goes on to say:

"We started the new year with maneuvers. On the morning of January 14th, 12 Pursuit airplanes and one observation plane took off for the Del Monte Pineapple Central, our headquarters in the northern part of the Island of Mindanao. We arrived that afternoon, only landing enroute to refuel at Iloilo. After out beautiful but long hop over water and tropical forests, the sight of the camp made ready for us by the enlisted personnel who had preceded us by boat, looked particularly good.

Our activities during the two weeks period of maneuvers consisted of inspection of landing fields pioneered By Lieuts. Old and Coleman, problems in radio communication and simulated defense against hostile aerial and naval forces.

Upon completion of maneuvers we made a flight to Zamboanga and Jolo from Del Monte, and returned to Clark Field by way of Cebu on Jan. 27.

On March 8th, a flight of Pursuit planes and the prescribed complement of officers and enlisted men under the command of Lieut. Old, engaged in a Gas Defense Maneuver at an outlying field west of Fort Stotsenburg between the Zambales Mountains and the China Sea. Simulated war conditions governed the exercise. All planes were camouflaged; tents, supplies and personnel were concealed in natural and improvised shelters. Gas masks were donned at sound of gas attack alarm.

TEMPORARY PROMOTION OF AIR CORPS OFFICERS
Effective April 20, 1935

Squadron Commanders to Grade of Major

Regular Rank	Name	Organization
Captain	William V. Andrews	21 Obs.(LR Amp)
Captain	Orin J. Bushey	64 Service
Captain	Roy W. Camblin	71 Service
Captain	John M. Clark	77th Pursuit
Captain	Earle J. Carpenter	1 Bombardment
Captain	John D. Corkille	8 Attack
Captain	Neal Creighton	9 Airship
Captain	Robert T. Cronau	20 Bombardment
Captain	Joseph H. Davidson	90 Attack
Captain	John M. Davies	9 Bombardment
Captain	Oliver S. Ferson	60 Service
Captain	Wm. C. Goldsborough	15 Observation
Captain	Benjamin F. Griffin	22 Observation
Captain	James L. Grisham	30 Bombardment
Captain	Arthur G. Hamilton	11 Bombardment
Captain	Caleb V. Haynes	37 Attack
Captain	Armin F. Herold	55 Pursuit
Captain	Virgil Hine	95 Attack
Captain	Harvey H. Holland	59 Service
Captain	Edwin J. House	94 Pursuit
Captain	Robert Knuch	12 Observation
Captain	Cornelius J. Kenney	57 Service
Captain	Westside T. Larson	32 Bombardment
Captain	Malcolm S. Lawton	49 Bombardment
Captain	Clarence B. Lober	19 Airship
Captain	Newton Longfellow	33 Pursuit
Captain	Frederick D. Lynch	62 Service
Captain	Jasper K. McDuffie	96 Bombardment
Captain	Leland W. Miller	61 Service
Captain	Warren A. Maxwell	56 Service
Captain	Edward M. Morris	13 Attack
Captain	William C. Morris	73 Attack
Captain	Devereaux M. Myers	70 Service
1st Lt.	James E. Parker	27 Pursuit
1st Lt.	Charles G. Pearcy	79 Pursuit
Captain	Walter R. Peck	34 Attack
1st Lt.	Donald B. Phillips	14 Bombardment
Captain	Leo F. Post	99 Bombardment
Captain	Carl W. Pyle	76 Service
Captain	Edward W. Raley	5 Bombardment
Captain	George E. Rice	97 Obs.(C & A)
Captain	Harold D. Smith	31 Bombardment
Captain	Rex K. Stoner	36 Pursuit
Captain	George T. Tourtellot	17 Pursuit
Captain	Francis B. Valentine	100 Service
Captain	Alfred E. Waller	35 Pursuit

To the Rank of Captain
Intelligence and Operations Officers

1st Lt.	George R. Acheson	1 Bombardment
1st Lt.	F. Edgar Cheatle	99 Bombardment
2nd Lt.	Philip D. Coates	22 Observation
1st Lt.	Leo H. Dawson	27 Pursuit
1st Lt.	Henry W. Dorr	35 Pursuit
1st Lt.	John P. Doyle, Jr.	5 Bombardment
1st Lt.	John H. Dulligan	34 Attack
1st Lt.	Albert F. Glenn	13 Attack
1st Lt.	Leslie P. Holcomb	15 Observation
1st Lt.	Minton W. Kaye	73 Attack

Intelligence and Operations Officers (Continued)

2nd Lt.	Morris J. Lee	77 Pursuit
1st Lt.	Arthur J. Lehman	97 Obs. (C&A)
1st Lt.	Donald R. Lyon	11 Bombardment
1st Lt.	John H. McCormick	96 Bombardment
1st Lt.	George McCoy, Jr.	90 Attack
2nd Lt.	Douglas T. Mitchell	79 Pursuit
1st Lt.	John G. Moore	31 Bombardment
1st Lt.	John J. Morrow	9 Bombardment
2nd Lt.	Thomas S. Power	20 Bombardment
1st Lt.	Elwood R. Quesada	Hq. Sqdn. GHQ A.F.
1st Lt.	William A.R. Robertson	14 Bombardment
1st Lt.	George F. Schulgen	33 Pursuit
1st Lt.	Robert R. Selway, Jr.	9 Airship
1st Lt.	Archibald Y. Smith	49 Bombardment
2nd Lt.	Sory Smith	55 Pursuit
1st Lt.	John M. Sterling	17 Pursuit
1st Lt.	Robert F. Tate	8 Attack
1st Lt.	Yantis H. Taylor	94 Pursuit
2nd Lt.	Lorry N. Tindall	12 Observation
1st Lt.	Stewart W. Towle, Jr.	21 Obs.(LR Amp)
1st Lt.	Clarence D. Wheeler	36 Pursuit
1st Lt.	Willard R.Wolfinbarger	37 Attack

Engineering Officers - Captains

1st Lt.	Herbert K. Baisley	100 Service
2nd Lt.	Theodore M. Bolen	71 Service
2nd Lt.	Norman R. Burnett	57 Service
2nd Lt.	Philo G. Meisenholder	60 Service
2nd Lt.	Samuel O. Redetzke	62 Service
1st Lt.	Charles B. Stone III	70 Service
1st Lt.	Milton M. Towner	61 Service
2nd Lt.	Hanlon H. Van Auken	56 Service
1st Lt.	Franklin C. Wolfe	76 Service

Supply Officers - Captains

1st Lt.	Alvord V.P. Anderson	70 Service
1st Lt.	Donald W. Buckman	64 Service
1st Lt.	Lambert S. Callaway	62 Service
2nd Lt.	Robert O. Cork	71 Service
1st Lt.	Joseph C.A. Denniston	61 Service
1st Lt.	Norris B. Harbold	76 Service
1st Lt.	George W. McGregor	100 Service
2nd Lt.	William C. Mills	60 Service
2nd Lt.	George F. Schlatter	57 Service
2nd Lt.	Morley F. Slaght	56 Service

Supply Officers - Captains
Group Organizations

1st Lt.	Thurston H. Baxter	20 Pursuit
1st Lt.	Demas T. Craw	9 Bombardment
1st Lt.	Dale D. Fisher	2 Bombardment
1st Lt.	Kirtley J. Gregg	17 Attack
2nd Lt.	James P. Newberry	12 Observation
1st Lt.	Edgar T. Noyes	7 Bombardment
2nd Lt.	Herbert H. Tellman	1st Pursuit
2nd Lt.	Lawrence C. Westley	3 Attack
1st Lt.	Roger V. Williams	19 Bombardment
1st Lt.	Russell A. Wilson	8 Pursuit

Addenda

1st Lt.	Cecil E. Henry	67 Service Sq.

To temporary rank of Captain

OFFICERS ADVANCED TO RANK OF MAJOR

Intelligence and Operations Officers

		Group
Captain	Charles C. Chauncey	3 Attack
Captain	Ira C. Eaker	17 Attack
Captain	Harold H. George	8 Pursuit
Captain	Oliver P. Gothlin,Jr.	20 Pursuit
Captain	William S. Gravely	12 Observation
Captain	Harold M. McClelland	19 Bombardment
1st Lt.	Harlan T. McCormick	1 Pursuit
Captain	Walter J. Reed	9 Bombardment
Captain	Lewis R.P. Reese	7 Bombardment
Captain	Earl S. Schofield	21 Airship

Headquarters G.H.Q. Air Force, Langley Field

Captain Eugene L. Eubank
Assistant to Assistant Chief of Staff, G-3
Captain Lawrence P. Hickey
Assistant to Assistant Chief of Staff, G-1
1st Lt. Charles H. Howard, Communications Section.
Captain Arthur K. Ladd
Assistant to Assistant Chief of Staff, G-4
Captain Clements McMullen
Assistant to Assistant Chief of Staff, G-3
Captain Ennis C. Whitehead
Captain John F. Whiteley
Assistant to Chief, Inspection Section.

OFFICERS ADVANCED TO RANK OF CAPTAIN

Assistant Operations Officers

1st Lt.	Joe L. Loutzenheiser	1st Wing
1st Lt.	Dwight B. Schannop	2nd Wing
1st Lt.	Nathan F. Twining	3rd Wing

Adjutant

1st Lt.	Hoyt L. Prindle	2nd Wing

Engineer and Armament Officers

		Group
1st Lt.	Henry M. Bailey	3 Attack
1st Lt.	Donald F. Fritch	8 Pursuit
1st Lt.	Wentworth Goss	19 Bombardment
1st Lt.	John N. Jones	9 Bombardment
1st Lt.	Cornelius E. O'Connor	2 Bombardment
2nd Lt.	Edwin S. Perrin	17 Attack
2nd Lt.	Clark N. Piper	1 Pursuit
2nd Lt.	Edwin W. Rawlings	12 Observation
1st Lt.	James W. Spry	7 Bombardment
1st Lt.	John A. Tarro	21 Airship
1st Lt.	Manning E. Tillery	20 Pursuit

Flight Commanders

		Squadron
1st Lt.	Walter R. Agee	11 Bombardment
1st Lt.	Earl W. Barnes	55 Pursuit
1st Lt.	William C. Bentley,Jr.	96 Bomb. C Flt.
1st Lt.	Ralph O. Brownfield	15 Observation
1st Lt.	Walter G. Bryte,Jr.	41 Obs. B Flt.
1st Lt.	Cecil E. Archer	32 Bomb.2d Flt.
1st Lt.	Robert E.L. Choate	49 Bomb.C Flt.
1st Lt.	Frank J. Coleman	94 Pursuit
1st Lt.	Raymond E.Culbertson	53 School
1st Lt.	James K. DeArmond	5 Bombardment
1st Lt.	Daniel C. Doubleday	27 Pursuit
1st Lt.	Richard I. Dugan	88 Obs. 3d Flt.
1st Lt.	James A. Ellison	79 Pursuit

Flight Commanders (Continued)

		Squadron
1st Lt.	Homer W. Ferguson	53 School
1st Lt.	Rudolph Fink	17 Pursuit
1st Lt.	Ralph E. Fisher	16 Obs. A Flt.
1st Lt.	Karl G.E. Gimmler	27 Pursuit
1st Lt.	Frederick E. Glantzberg	20 Bomb.A Flt.
1st Lt.	Charles G. Goodrich	36 Pursuit
1st Lt.	William T. Hefley	22 Obs.1st Flt.
1st Lt.	LeRoy Hudson	22 Obs.2d Flt.
1st Lt.	Paul M. Jacobs	17 Pursuit
1st Lt.	Paul H. Johnston	99 Bombardment
1st Lt.	Donald J. Keirn	9 Bombardment
1st Lt.	Robert H. Kelly	12 Obs. 2d Flt.
1st Lt.	Reuben Kyle, Jr.	12 Obs.1st Flt.
1st Lt.	Charles W. Lawrence	52 School
1st Lt.	John F. McBlain	52 School
1st Lt.	Carl B. McDaniel	46 School
1st Lt.	Thomas B. McDonald	77 Pursuit
1st Lt.	A.J. Kerwin Malone	95 Attack (A)
1st Lt.	George P. Moody	1 Bombardment
1st Lt.	Charles T. Myers	47 School
1st Lt.	Emmett O'Donnell, Jr.	94 Pursuit
1st Lt.	John J. O'Hara, Jr.	22 Obs.3d Flt.
1st Lt.	James F. Olive, Jr.	5 Bombardment
1st Lt.	Budd J. Peaslee	35 Pursuit
1st Lt.	David M. Schlatter	52 School
1st Lt.	William L. Scott, Jr.	96 Bomb.A Flt.
1st Lt.	Luther S. Smith	43 Pursuit (A)
1st Lt.	Milton J. Smith	12 Obs.3d Flt.
1st Lt.	Edgar A. Sirmyer, Jr.	33 Pursuit
1st Lt.	John T. Sprague	49 Bomb.A Flt.
1st Lt.	Allen R. Springer	36 Pursuit
1st Lt.	Fred O. Tally	8 Attack
1st Lt.	Edgar R. Todd	96 Bomb.B Flt.
1st Lt.	Walter E. Todd	27 Pursuit
1st Lt.	Robert F. Travis	49 Bomb.B Flt.
1st Lt.	Louie P. Turner	37 Attack
1st Lt.	Lee Q. Wasser	94 Pursuit
1st Lt.	Robert B. Williams	30 Bomb.A Flt.
1st Lt.	Charles G. Williamson	31 Bombardment
1st Lt.	Harry E. Wilson	33 Pursuit

Operations Officer

1st Lt.	Edmund C. Lynch	A.C. Primary Flying School

OFFICERS ADVANCED TO RANK OF FIRST LIEUTENANT

(All Second Lieutenants)

	Group
Adjutants	
Thomas C. Darcy	8th Pursuit
John H. Ives	2nd Bombardment
Joe W. Kelly	1st Pursuit
Henry K. Mooney	20th Pursuit
Edward W. Suarez	7th Bombardment
Communications Officers	
Oliver S. Picher	35th Pursuit Sqdn.
Radio Officers	
John P. McConnell	20th Pursuit Group
Photographic Officers	
Kenneth B. Hobson, Comdg.	23d Photo Section
James F. Thompson,Jr.	Photo. Officer,1st Lec.
Armament Officers	
	Squadrons
William J. Bell	56th Service
Paul W. Blanchard	57th Service

Armament officers (Continued)

Leon R. Brownfield	15th Observation
Frederick E. Calhoun	13th Attack
Robert L. Carver	55th Pursuit
Kenneth R. Crosher	8th Attack
Loren B. Hillsinger	62nd Service
Harvey P. Huglin	90th Attack
Harold R. Maddux	79th Pursuit
Romulus W. Puryear	77th Pursuit
John R. Sutherland	20th Bombardment

Engineering Officers

Milton W. Arnold	90th Attack
Jesse Auton	73rd Attack
Joseph W. Baylor	99th Bombardment
John H. Davies	13th Attack
Richard A. Grussendorff	37th Attack
Marvin L. Harding	9th Bombardment
John T. Helms	95th Attack
David H. Kennedy	49th Bombardment
Hugh F. McCaffery	Hq. Sqdn. GHQ A.F.
Joseph A. Miller	96th Bombardment
Ernest Moore	77th Pursuit
David N. Motherwell	79th Pursuit
William O. Senter	20th Bombardment
Carl R. Storrie	88th Obs. L.R. Amph.
Dean C. Strother	55th Pursuit
Edward J. Timberlake	40th Attack
Birrell Walsh	31st Bombardment

Supply Officers

Charles H. Anderson	17th Pursuit
George D. Campbell, Jr.	88th Obs. L.R. Amph.
James H. Cunningham, Jr.	5th Bombardment
Carl F. Damberg	97th Obs. (C & A)
Gabriel P. Disosway	55th Pursuit
William M. Garland	31st Bombardment
Paul R. Gowen	77th Pursuit
Archibald J. Hanna	33rd Pursuit
Hunter Harris, Jr.	34th Attack
Richard T. King, Jr.	9th Bombardment
Lester L. H. Kunish	8th Attack
Stephen B. Mack	79th Pursuit
Andrew Meulenberg	15th Observation
Troup Miller, Jr.	20th Bombardment
Berkeley E. Nelson	36th Pursuit
Stoyte O. Ross	35th Pursuit
James S. Sutton	73rd Attack
Thomas L. Thurlow	30th Bombardment

STATION COMPLEMENTS

Commanding Officers to Lieutenant-Colonel

Major Eugene A. Lohman	March Field
Major Martin F. Scanlon	Bolling Field

Commanding Officers to Major

Captain Fred C. Nelson	Selfridge Field

Executive Officers to Major

Captain Bernard T. Castor	March Field
Captain Angier H. Foster	Barksdale Field
Captain Albert M. Guidera	Langley Field
Captain Dol L. Hutchins	Hamilton Field
Captain Horace N. Heisen	Rockwell Field
Captain James C. Shively	Scott Field
Captain Clarence C. Wilson	Mitchel Field

Engineering Officers to Major

Captain Harold W. Beaton	Rockwell Field
Captain Hugh C. Downey	Mitchel Field
Captain Albert C. Foulk	March Field
Captain Edward V. Harbeck, Jr.	Barksdale Field
Captain Aubrey Hornsby	Bolling Field
Captain James T. Hutchison	Langley Field
Captain Guy Kirksey	Hamilton Field
Captain Michael E. McHugo	Scott Field

Supply Officers to Major

Captain Shiras A. Blair	Mitchel Field
Captain George G. Cressey	Scott Field
Captain Robert H. Finley	Rockwell Field
Captain Alfred Lindeburg	Barksdale Field
Captain George G. Lundberg	Bolling Field
Captain Jesse A. Madarasz	March Field
Captain Harold A. McGinnis	Langley Field

Engineering Officers to Captain

1st Lt. Ernest K. Warburton	Selfridge Field
2nd Lt. Harold W. Grant	Brooks Field

Supply Officers to Captain

1st Lt. Alfred A. Kessler, Jr.	Selfridge Field

Adjutants to Captain

1st Lt. Wilbur Frikson	Hamilton Field
1st Lt. Walter W. Gross	Rockwell Field
1st Lt. Joseph G. Hopkins	Barksdale Field
1st Lt. Milton M. Murphy	March Field
1st Lt. Earle E. Partridge	Selfridge Field
1st Lt. William L. Ritchie	Scott Field

Operations Officers to Captain

1st Lt. Harold Brand	Rockwell Field
1st Lt. Paul H. Kemmer	Hamilton Field
2nd Lt. Robert S. Macrum	Brooks Field
1st Lt. Howard Moore	Mitchel Field
1st Lt. Richard E. Nugent	Langley Field
2nd Lt. Minthorne W. Reed	Selfridge Field
1st Lt. Pearl H. Robey	Barksdale Field
1st Lt. Robert L. Schoenlein	March Field

Signal Officers to 1st Lieutenant

2nd Lt. Millard L. Haskin	Mitchel Field
2nd Lt. David W. Hutchison	Selfridge Field
2nd Lt. Millard Lewis	Hamilton Field
2nd Lt. Harold L. Smith	March Field
2nd Lt. Stanley R. Stewart	Brooks Field

Meteorological Officers to 1st Lieutenant

2nd Lt. Anthony E. Curcio	Rockwell Field
2nd Lt. Harry H. Geoffrey	Mitchel Field
2nd Lt. Torglis G. Wold	Selfridge Field

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ASSIGNMENT OF GRADUATES OF A.C. TECHNICAL SCHOOL

Upon completion of their present course of instruction at the Air Corps Technical School, Chanute Field, Rantoul, Ill., the following-named Air Corps officers are assigned as follows: 1st Lts. Samuel V. Stephenson to Selfridge Field, Hilbert M. Wittkop to Randolph Field, 2nd Lieuts. Kurt M. Landon to Scott Field, Daniel W. Jenkins to Barksdale Field and Roy T. Wright to Brooks Field.

RANDOLPH FIELD'S PART IN ARMY DAY CELEBRATION

On the night of April 5th, a 12-ship formation from Randolph Field, Texas, fully illuminated, together with three ships of each type used at Kelly Field, flew over San Antonio in honor of Army Day. A radio program was broadcast from one of the Bombers from 8:00 to 8:15, which was picked up and re-broadcasted by radio station KTSA. It also went over the Southwest Net Work.

On the following day, April 6th, Army Day, Randolph Field flew a "USA" formation over San Antonio. Forty-eight ships were used to form the letters U, S and A. In addition, a 15-ship formation and a 3-ship formation were flown over the city at the same time.

For the remainder of the day, Randolph Field kept open house for the public, and airplanes were kept on the line for inspection.

As tending to show the enthusiasm with which the San Antonio public received the U S A formation, the following poem, by Mrs. C.A. Laufenburg, which was sent to the Randolph Field's Officers' Club, is quoted:

W I N G S

Nothing so great nor grand can compare,
To themajestic flight of ourfleet in the air,
Flying the unknown ways on high,
With eagle wings of steel in the sky,
Watching in rapture the wonderful way,
That Randolph forms the U. S. A. -
Out of the shining ships made of steel,
Yearning to tell you how proud we feel,
As we stand at attention and upward gaze,
At the parade of ships along the sky-ways,
With hearts overflowing we upward fling,
To the men on high, a hymn we sing -
Of praise for an army, with men like these
That fly our fortress on liberty's breeze,
A defense for our country, the pilgrim's pride
An honor to those who for freedom have died.
And if to the unknown ways on high -
The bugle call came to do and to die,
We can see you fly o'er rocks and rills,
O'er mountain tops' and our home land hills,
To hold this Union so strong and great -
For freedom's cause, that no other fate,
Can o'ertake our land as long as you fly,
So bravely those ships of steel thry the sky,
We take off our hats to the wings of the air
And reverently how our heads in prayer -
That war shall be ended and Liberty stand -
With its torch of faith, secure in our land.

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1ST WING, GHQ AIR FORCE, IN ARMY DAY CELEBRATION

Saturday, April 6th, found all units of the First Wing participating in the activities of Army Day. A composite squadron of Pursuit planes under Captain Ira C. Eaker flew over the Metropolitan district, and, landing at Grand Central Air Terminal, remained on display during the afternoon. The 95th Attack Squadron was dispatched to Hamilton Field and accompanied the 7th Bombardment Group in aerial maneuvers over San Francisco and vicinity. Miscellaneous aircraft of the Group appeared at various other airports throughout Southern California. Again, at night, the Pursuit planes engaged in a mock attack on the established camp at Griffith Park, Los Angeles. Newspapers reported that 100,000 people witnessed the demonstration at the Grand Central Airport.

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CONCENTRATION OF FIRST WING, GHQ AIR FORCE

April 13th marked the largest concentration yet to be effected by the 1st Wing. Units participating in the maneuvers were the Bombardment Groups from Hamilton and Rockwell Fields, the Attack Group from March Field, and the 88th Observation Squadron from Brooks Field, Texas. Ninety tactical planes in all were present for the exercises, which lasted two days.

On Sunday, the 14th, one of the largest crowds ever assembled on March Field saw the units engage in an aerial review for Brigadier-General H.H. Arnold, who had returned from Washington after receiving the Mackay Trophy. Later in the day, Major-General Paul B. Malone, Commanding Officer of the 9th Corps Area, arrived at March Field and was guest of honor at the Wing Smoker held that night and attended by all officers of the 1st Wing present on the field.

General Malone demonstrated his exceptional ability as a public speaker in an address at the banquet in which he expressed the amiable feeling of the line branches toward the Air Corps, emphasizing the fact that the success of the entire army depended on the unity of purpose and action of its various divisions.

The next day, General Malone made a tour of the station, inspecting equipment, installations, and troops of the Station Complement, and receiving an aerial review by the tactical units. In addressing General Arnold, General Malone remarked that it was the best demonstration of flying he had ever seen in the Air Corps. Following the review, visiting organizations left for their home stations, with the next concentration date set as May 4th.

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WORLD WAR PIGEON STILL ENJOYS GOOD HEALTH

It appears that the last resting place of Stumpy John Silver, famous World War pigeon, is to be the Aeronautical Museum at Wright Field, Dayton, Ohio. The Hawaiian Air Depot received word to that effect from the Chief of the Materiel Division. An inquiry directed to the pigeon lofts at Schofield Barracks, T.H., regarding Stumpy John revealed that he is still enjoying good health, despite his ripe old age of 18 years, so no definite date can be established as to when he will be taken to a taxidermist and ultimately shipped to his last resting place.

V-6777, A.C.

AIRSHIP TAKES OFF ON WHEELS

Recent tests were conducted at Langley Field, Va., for the purpose of determining how large a load could be lifted aerodynamically by applying the airplane principle of take-off to airships of the non-rigid type.

Until wheels were mounted under the car, it had been customary to rely almost entirely upon the bouyancy of the lifting medium to raise the ship sufficiently clear of the ground before applying the power of its engines. With the advent of wheels, it was soon discovered that a slightly heavy ship could "weather" minor shocks of the terrain and lift its load to flying altitude. The tests referred to were conducted with the TC-13 Airship (365,000 cubic feet capacity) equipped with two 375 horsepower geared engines, and the purpose was to determine to what extent the principle of aerodynamic lift could be applied to airships in taking off and the range increase to be expected therefrom.

The heavy take-offs were started at 1537 pounds with various conditions of "trim." It was noted that with light loadings the nose had to be trimmed down to overcome the thrust of the propellers as power was applied; that as the loads were increased the effect of propeller thrust became negligible, and unless the load was placed in the rear of the center of gravity an excessively long run had to be made before the elevators would take effect. The maximum load carried was 3,500 pounds with the nose trimmed "up" one degree and the engines running at full throttle. The length of the run was 375 feet, and the time 21 seconds. The speed at take-off was 40 m.p.h. (indicated).

In the second run with the ship loaded 1869 pounds heavy only and the nose trimmed down two degrees, the length of the run was 715 feet, the time 33 seconds and the air speed 64 m.p.h. at take-off.

These take-offs were made on the grass field adjoining the airship hangar at Langley Field. A drenching rain had soaked the field. Under these conditions, the excess loading of 3500 pounds appeared to be near the peak, as the rudders came dangerously close to striking the ground. However, a smooth, hard landing surface would no doubt slightly increase the loads which may be lifted aerodynamically.

In comparing the relative merits of the two methods of taking off airships, statically and aerodynamically, the latter method indicated that an additional 980 gallons of fuel can be carried. This increases the endurance of the TC-13 by 26 hours at 50 miles air speed. Its range in still air is increased by 1300 miles.

6th COMPOSITE GROUP IN PANAMA MANEUVERS

The annual maneuvers in the Panama Canal Department, in which the 6th Composite Group, Air Force, participated, have just been concluded. Lieut.-Col. L.H. Brereton, normally the Commanding Officer of the Group, was Commanding Officer of the mobile air force in the field of the Brown mobile force commanded by Major-General Lytle Brown. Lieut.-Colonel J.H. Houghton acted as Group Commander. Personnel from France Field, comprising 24 officers and 205 enlisted men, took the field.

All personnel and equipment were ferried to advanced airdromes by air transportation. This, considering the shortage of airplanes, was quite an accomplishment. Both officers and enlisted men subsisted on the field ration (iron) which consisted largely of hard tack and cheese and more hard tack and cheese. However, it was found that a hard day in the field and a little manipulation in its preparation made the ration fairly edible.

The 6th Composite Group camp at LaJoya was situated on the Arias Ranch, near the Pacora River. This river was utilized for swimming; in fact, even bathing. A fine rocky pool was discovered and utilized by almost everyone until one afternoon, when our intrepid local hunter and flight surgeon, Captain W. M. Scott, popped off a 7-foot crocodile who had joined and was mingling with the bathers.

Captain W.J. Davies was also slightly nonplussed on one occasion upon finding a fer-de-lance snake resting in his parachute.

Captain J.F. Guillett is now known as "Little Garcia," having distinguished himself by accepting a message from Col. Brereton for delivery to General Brown and then dashing off down the road on a motorcycle, completely passing up General Brown and disappearing in a cloud of dust and falling in the hands of the enemy. General Brown dryly remarked: "Some day that young man will get hungry and come back to eat, and we will find out what is in the message."

Other than the normal run of camp incidents, a few scorpions and the usual amount of tropical bugs, a good time was had by all. The morale was excellent, and certainly the command as a whole has been considerably hardened up. The maneuvers ended with a Department Review in honor of President Harmodio Arias of Panama. Some 8,000 troops with vehicles, animals and airplanes participated in the Review.

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Among the new officer arrivals at France Field, Panama, are Major Richard H. Ballard, Capt. George R. Geer, 1st Lt. William H. McArthur, 2nd Lt. Richard M. Montgomery, A.C., and Capt. Kenneth A. Brewer, Medical Corps.

V-6777, A.C.

PHILIPPINES A HUNTER'S PARADISE
By Captain Richard D. Reeve, A.C.

Many officers coming to the Philippines are not acquainted with the fact that these islands are a hunter's paradise. They are often advised to leave their firearms at home when in reality, if one loves the chase, he should bring all his guns with him.

Many different varieties of bird and game shooting are to be found throughout the group of islands. In the vicinity of Manila and on Nichols Field, in fact, excellent snipe shooting is to be had in the fall of the year. And are they good eating! In all other parts of the islands away from the settled areas, excellent pig and deer shooting is to be had. Officers hunting in the northern provinces have reported seeing from fifty to seventy-five in a day. They range in size, varying from 60 to 250 pounds, depending on the region and forage. Wild pig will run from 50 to 400 pounds. Monster pig, probably the real wild boar species, have been reported killed on the Island of Palawan, ranging up to 500 pounds, with tusks a good 8 or 9 inches long.

The real deluxe hunting is to be found on the Island of Mindoro, the only place in the world where the tamaraw is found. It is a species of buffalo, weighing from 400 to 700 pounds, resembling the carabao except for the fact that it lives in the hills and mountains rather than the swampy plains, as do the buffalo. They are extremely wild and fierce. Hunting parties in the past few years have reported various encounters. One officer, charged by two of them, killed one at 1500 feet and the other at 20 feet. The writer on a trip last year saw a wounded tamaraw charge a native beater, goring him in the chest, with the result that the Filipino spent three months in the hospital. This year a native Manyan escaped the charge of a tamarew only through being just a little too quick. Deer and wild pig are also plentiful. A party recently returned with four nice heads, also many deer and pigs. Hunting is very difficult because of the extreme heat and the rough country traversed.

In the Mindanao province excellent duck hunting is to be found. Several hunters have returned with nice bags.

Excellent deep sea fishing is also to be had. The writer is not an authority on that subject. However, you fishermen bring all your equipment, otherwise you will miss a lot.

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An "Aloha" flight in honor of Major General Hugh A. Drum, was staged by Army pilots from Wheeler Field upon the occasion of his arrival to assume command of the Hawaiian Department. Following a Wing Review over the Transport REPUBLIC, Pursuit units passed over forming a huge letter "D."

19th COMPOSITE WING IN PANAMA MANEUVERS

The work of the 19th Composite Wing during the annual maneuvers of the Panama Canal Department was highly praised by the Commanding Generals of both sides, Major-General Lytle Brown (the Brown Commander) and Brigadier-General John W. Gulick (the Blue Commander), at a critique attended by all officers of the Department at the end of practically a month of strenuous field activities.

The maneuvers began on March 6th, and during the first phases the Wing operated from its home stations, Albrook Field and France Field. During the latter phase, the 6th Composite Group was attached to the Mobile Force (Brown) attacking the Zone from a base at Chepo, Republic of Panama, while the 16th Pursuit Group (44th Observation Squadron attached) was attached to a Provisional Coast Artillery Brigade (Blue), the defender. Without interruption of operations, the 6th Composite Group moved by air and truck first to Chepo and then to a field at LaJoya. The 16th Pursuit Group, also without interruption of its operations, moved to a field at La Chorrera.

The maneuvers served to emphasize the necessity for adequate and prompt means for communicating between the commanders on the ground and the observers in the air.

The maneuvers closed with a review on March 30th, when approximately 8,000 troops were massed at Albrook Field. The 19th Composite Wing participated on foot, in motor vehicles and in the air. The ground element, formed as three infantry battalions and a convoy of 83 motor vehicles, was commanded by Lieut.-Colonel Junius H. Houghton, while the air element, comprising the entire aircraft strength of the Panama Canal Department, was commanded by Colonel McChord, flying a P-12E.

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FLYING TRAINING FOR YOUNG MEN IN ITALY

According to reports, of the total of 438 young Facists who were enrolled during 1934 for training as pilots, 391 qualified, 46 were eliminated for various reasons and one was killed. These students made 53,644 flights for a total flying time of 10,212 hours.

It is interesting to note that practically 90% of student pilots enrolled were brevetted as "pre-military pilots." The average time was approximately 25 flying hours per student.

Upon being called for military service (during 21st year age) these "pre-military pilots" will be sent to the central flying school now at Grottaglie. At this school an additional course of about 50 hours flying with transition to service types is given. The successful

pilots are then rated "military pilots" and sent to Specialty schools (pursuit or bombardment) or to combat squadrons for additional flying training and eventually squadron flight duty.

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FLIGHTS BY FIRST PURSUITERS ON ARMY DAY

The First Pursuit Group, Selfridge Field, Mich., staged two tactical problems on April 6th (Army Day) for the purpose of performing demonstration flights over Detroit and Chicago. The first flight took off at 11:00 a.m., under the command of Captain George P. Tourtellot, and consisted of 18 P-26A Pursuit planes. This squadron performed a tactical mission during the period 11:00 - 11:45 a.m., rendezvousing over Detroit at 11:50 and flying over the line of march at exactly 12:00 noon. This completed, the squadron continued the original mission and landed at the home airdrome 12:45 - 1:15 p.m.

A second flight of 18 P-26A planes took off from Selfridge Field at 1:30 p.m., under the command of Lieut.-Col. Ralph Royce and worked a tactical problem en route to Chicago, Ill., timing their arrival there so as to fly over the parade at 3:30 p.m. This flight was grounded in Chicago from April 6th to 9th, due to bad weather - heavy dust and rain storms. None of the pilots in the earlier flight on Army Day participated in the second flight, due to the shortage of airplanes and the desire to have training progress as evenly as possible for all pilots of the Group.

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ANOTHER ERRAND OF MERCY FOR ARMY AIRMEN

The value of the airplane as an ambulance, especially in countries where roads are few and difficult, was again demonstrated by personnel of the 19th Composite Wing, Albrook Field, Panama Canal Zone, on the night of April 5th. Shortly before dusk, the Commanding Officer of Company A of the 11th Engineers telephoned from Agua Dulce, Republic de Panama, to the Commanding Officer of Albrook Field that one of his soldiers was in a critical condition and was not expected to survive the night unless he could receive hospital treatment.

Despite the fact that there are no lighted airways across the jungles of Panama, lighted fields or even lights brighter that kerosene burners in the towns themselves, Captain H.E. Rice, pilot, with Major C.L. Chase, Flight Surgeon, and Staff Sergeant Roby C. Davis, 29th Pursuit Squadron, Crew Chief, took off for Agua Dulce in a C-9. It was "just" dark when the transport landed in the unlighted field at Agua Dulce and took on board the patient, Sergeant A.J. Schaffler, a member of a mapping detail.

Captain Rice negotiated the take-off from the unlighted field without incident and covered the 100 miles to Albrook Field within an hour. The soldier was rushed to the Gorgas Hospital where it was determined that, after all, he was not suffering from appendicitis. However, he was a very sick man and his physicians agree that he would not have survived the night had the C-9 not negotiated the night flight over the jungles.

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WAR DEPT. ORDERS AFFECTING AIR CORPS OFFICERS

CHANGES OF STATION: To Randolph Field, Tex.: Brig. Gen. James E. Chaney, from Office of the Chief of the Air Corps, to assume command of the Air Corps Training Center.

To Hamilton Field: Capts. Carlyle H. Ridenour and Delmar H. Dunton from Rockwell Field.

To March Field: 2nd Lieut. Lloyd H. Watnee from Hamilton Field.

To Bolling Field: Captain Jack C. Hodgson, upon completion of course of instruction at Army Industrial College.

To Los Angeles, Calif: Captain B.F. Giles, upon completion of present course of instruction at Air Corps Tactical School, as Instructor of Air Corps, California National Guard.

To Materiel Division, Wright Field: 1st Lt. Paul H. Kemner, from Hamilton Field.

To Langley Field, Va.: Major Alonzo M. Drake, 80th Service Sqdn., Panama. Relieved from temporary rank upon leaving Panama.

To Maxwell Field: Captain Bayard Johnson, from M.I.T., Cambridge, Mass.

To Rockwell Air Depot: Captain Harold H. Carr from Scott Field.

To Panama Canal Dept.: Capt. Isaac J. Williams, A.C. Detachment, Ft. Lewis, Wash.

To Houston, Texas: Col. Theodore A. Baldwin, for recruiting duty. Previous orders revoked.

To Huntington, W. Va.: 2nd Lt. James H. Cunningham, Jr., from Mitchel Field, assigned to duty with Corps of Engineers.

To Hawaiian Department: Major Hume Peabody, from Army War College, July 30th; 1st Lieut. Kingston E. Tibbetts, from A.C. Technical School, Chanute Field.

PROMOTIONS: To Major: Captain Stephen J. Idzorek, rank from March 24, 1935.

To 1st Lieut.: 2nd Lieuts. George G. Northrup, rank March 24th; Thomas S. Power, March 30th; Lloyd H. Watnee, March 31st; Philip D. Coates, Tulma W. Imlay, John H. Bundy, Mills S. Savage, Harold W. Bowman, Lorry N. Tindal, Merlin I. Carter, James W. Sessums, Jr., Charles K. Moore, Austin A. Straubel and Wycliffe F. Steele, rank from April 1, 1935.

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Captain Karl S. Axtater, Scott Field; 1st Lts. Wilfred J. Paul, Langley Field, and John G. Salsman, Fort Bragg, N.C., were ordered to Randolph Field for heavier-than-air training with class starting July 1st next.

GENERAL CHANEY ASSUMES COMMAND OF THE AIR CORPS TRAINING CENTER

The assignment of Brigadier-General James E. Chaney, Air Corps, who for the past four years was on duty in the Office of the Chief of the Air Corps, to the Air Corps Training Center, Randolph Field, Texas, May 1st, to assume command, takes him back to familiar surroundings, for nearly five years ago he completed dividing up a four-year tour of duty at both the Primary and Advanced Flying Schools at San Antonio.

General Chaney was born March 16, 1885, in Maryland. After attending Baltimore City College for three years, he received an appointment to the United States Military Academy.

Upon graduating from West Point in 1908, he was commissioned a 2nd Lieutenant and assigned to duty with the 9th Infantry.

During the period of time between 1908 and 1914, he served a tour of duty in the Philippine Islands, was on duty as an instructor at the U.S. Military Academy for four years, and on duty at the American Embassy, Madrid, Spain, for five months.

Promoted to 1st Lieutenant in July, 1914, he was attached to the 30th Infantry. Six months later, in December, 1914, he was assigned to the 25th Infantry, with station at Schofield Barracks, Honolulu, T.H., where he was in command of a company for two years.

On his next change of station, General Chaney was assigned to duty at Chanute Field, Rantoul, Ill., where he reported on October 16, 1917. He only served several weeks at this station, for on November 6th he was transferred to Columbus, Ohio, and assigned to duty as Commandant of the School of Military Aeronautics, Ohio State University. He had been promoted to Captain on March 22, 1917, and on August 5th of that year received an appointment as Major, Signal Corps.

Transferred to Washington, D.C., on June 12, 1918, he was assigned to duty in the Office of the Director of Military Aeronautics as Executive Officer in the Operations Section. This assignment was of brief duration, for several months later he sailed for duty overseas, and from September 4, 1918, he served with the American Expeditionary Forces, being on duty at Tours; Paris; at the Air Service Production Center No. 2, where he received flying training; with the 3rd Army as Chief Air Service Officer, Service of Supply; as Commanding Officer of the Airdrome at Coblenz, Germany; and as Aviation Officer under the Commanding Officer, Provisional District of Great Britain, at London, England.

From October 8, 1919, to June 5, 1924, General Chaney served as Assistant Military Attache at Rome, Italy, where he was on very cordial terms with the officers directing the Italian Royal Air Force.

Transferred to Langley Field, Va., General Chaney attended the Air Corps Tactical School at that station and graduated in June, 1925. He was then assigned as student at the Command and General Staff School, Fort Leavenworth, Kansas, from which he emerged in June of the following year as an honor graduate.

From June 24, 1926, to July 15, 1927, he served as Commandant of the Air Corps Primary Flying School at Brooks Field, Texas, and from July 16, 1927, to July 30, 1930, as Commandant of the Advanced Flying School at Kelly Field, Texas.

General Chaney was next assigned as student at the Army War College, Washington, D.C., and upon his graduation from this institution in June, 1931, he was assigned to duty in the Plans Division, Office of the Chief of the Air Corps. He was promoted to Lieutenant-Colonel, February 1, 1932.

From January 29 to June 1, 1932, he was on duty as military adviser to the delegation to the General Disarmament Conference at Geneva, Switzerland.

In the operation of the Air Mail by the Army Air Corps from February to May, 1934, General Chaney was assigned to duty as Executive Officer on the staff of General Westover, Officer in Charge.

General Chaney received his promotion to his present rank on July 17, 1934.

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WILEY POST JUST WON'T TALK

Wiley Post paid a visit to the 113th Observation Squadron, Indiana National Guard, at Indianapolis, after he was forced down in his third attempt to make a record coast to coast flight in the stratosphere. According to the News Letter Correspondent, his supercharger went "haywire" when he was somewhere near Cincinnati, Ohio, after his motor had coughed a couple of times. Also, his oxygen equipment was not functioning properly, and in feeding oxygen too rapidly it caused the glass window in his stratosphere helmet to fog up, thus giving him practically no visibility. As he could not get his hands inside the helmet, his only available windshield wiper was his nose. After using his nose as a mechanical accessory to the plane for a considerable length of time, it became somewhat indifferent if not sore, likewise his neck.

Knowing that he had crossed the Indianapolis-Chicago radio beacon line, he began to lose altitude and look for a field, and quite conveniently the Lafayette airport on the Purdue campus came into view. After circling the field a few times to be sure it was clear, and to find a spot smooth enough to land without a landing gear, he sat it down for a perfect belly landing without any damage to the plane.

Capt. L.I. Aretz helped him off with his elaborate headgear, and brought him over to attend our regular drill, accompanied by Dr. Arnet of the State Armory Board. Naturally, we all anticipated an opportunity to hear his story of the flight, but when he modestly declined, we gave him the usual "So you won't talk, eh?" and turned to Capt. Aretz and Dr. Arnet for short talks.

RECIPIENTS OF THE DISTINGUISHED FLYING CROSS

Up to this writing, the following-named personnel have been awarded the Distinguished Flying Cross:

For extraordinary achievement while participating in aerial flight

AIR CORPS

Captain St. Clair Streett
1st Lieut. Erik H. Nelson
1st Lieut. Clarence E. Crumrine
1st Lieut. Clifford C. Nutt
1st Lieut. Ross C. Kirkpatrick(posthumously)
Master Sergeant Joseph E. English
Sergeant James D. Long

Alaskan Flying Expedition. Pioneering flight from Mitchel Field, L.I., New York, to Nome, Alaska, and return, July 15-October 15, 1920.

1st Lieut. James H. Doolittle

On September 4 - 5, 1922, he accomplished a one-stop flight from Pablo Beach, Fla., to San Diego, Calif., in 22 hours and 30 minutes elapsed time, an extraordinary achievement with the equipment available at that time. By his skill, endurance and resourcefulness he demonstrated the possibility of moving Air Corps units to any portion of the United States in less than 24 hours.

Captain John A. Macready
1st Lieut. Oakley G. Kelly

For successfully completing the first non-stop flight across the American continent in the history of aviation. Departed from Mitchel Field, N.Y., at 12:36 p.m., May 2, 1923, in the Army airplane T-2. Encountering practically every hazard of flying, and displaying remarkable ingenuity, skill and perseverance in overcoming the many handicaps imposed upon them by the elements and the mechanical equipment used, they arrived at Rockwell Field, Coronado, Calif., at 12:26 p.m., May 3, 1923.

Captain Lowell H. Smith
1st Lieut. John P. Richter

Pioneers in establishing the practicability of refueling airplanes while in flight. On June 28-29, 1923, they piloted an airplane refueled in flight for 37 hours, 15 minutes, 14-4/5 seconds, breaking the endurance record, the speed records from 2500 to 5,000 kilometers, and the distance record (5300 kilometers).

1st Lieut. Russell L. Maughan

For fastest time ever made by man between New York and San Francisco. Departed from Mitchel Field, N.Y., at 2:58 a.m. EST, June 23, 1924, in a modified Pursuit type airplane on Dawn to Dusk flight and landed at Crissy Field, Presidio of San Francisco, Calif., at 9:47 p.m., Pacific time, same date. Flew 2540 miles in 21 hours, 48½ minutes.

1st Lieut. Harry A. Sutton

Between December 15 to 22, 1926, at Santa Monica, Calif., Lieut. Sutton, at great personal hazard, piloted an O-2 airplane in tests to determine the spinning characteristics of this type of plane, which resulted in invaluable data being made available to airplane designers. These tests were voluntary and above the call of duty.

Major Herbert A. Dargue
Captain Ira C. Eaker
Captain Arthur B. McDaniel
Capt. Clinton F. Woolsey(posthumously)
1st Lt. John W. Benton (posthumously)
1st Lieut. Muir S. Fairchild
1st Lieut. Charles McK. Robinson
1st Lieut. Leonard D. Weddington
1st Lieut. Ennis C. Whitehead
1st Lieut. Bernard S. Thompson

For participation in the Pan-American Flight, December 21, 1926, to May 2, 1927. They displayed initiative, resourcefulness and a high degree of skill under many trying conditions encountered throughout the flight. Their tireless energy, sound judgment and personal courage contributed materially to the successful accomplishment of this mission of good will.

Captain Charles A. Lindbergh, Reserve

In recognition of his courage, skill and resourcefulness in piloting unaccompanied "The Spirit of St. Louis" from New York across the Atlantic Ocean to Paris, France, a distance of 3,600 miles, the longest non-stop flight ever made by man.

1st Lieut. Lester J. Maitland, pilot.
1st Lieut. Albert F. Hegenberger, co-pilot and navigator.

By masterly skill, courage, endurance and tenacity of purpose, they successfully navigated an Army airplane June 28-29, 1927, from Oakland, Calif. to Honolulu, Hawaiian Islands, over the greatest expanse of open sea yet crossed in a non-stop flight. With full knowledge of the dangers and difficulties, they traversed over 2400 miles of the Pacific Ocean with marvelous accuracy of direction and thereby demonstrated conclusively the practicability of accurate aerial navigation.

Arthur C. Goebel, 2nd Lieut. Reserve

On August 16-17, 1927, he piloted an airplane on a non-stop flight from Oakland, Calif. to Wheeler Field, T.H., a distance of 2400 miles, in 26 hours and 17 minutes.

1st Lieut. Carl B. Eielson, Reserve

As pilot he accompanied Captain George H. Wilkins (an English subject) from Point Barrow, Alaska, to Dead Man's Island, Archipelago of Spitsbergen, April 15-16, 1928, without stop, a distance of more than 2200 miles. The severity of the weather, the storm area through which they passed, with no hope of outside aid

in case of a forced landing, and the complete success of the enterprise distinguishes it as one of the most extraordinary accomplishments in aviation history.

2nd Lieut. Dean Cull Smith, Reserve

As one of the pilots of the 1928-1930 Byrd Antarctic Expedition, he made numerous flights over the Antarctic regions in the face of the gravest danger.

Captain Ashley C. McKinley, Reserve

As photographer for the 1928-1930 Byrd Expedition, he participated in the face of the very gravest danger in numerous flights over the Antarctic regions, which culminated in the flight with three companions to the South Pole, November 28-29, 1929.

Major Carl Spatz, Commanding Officer
1st Lt. Harry A. Halverson, Relief Pilot
2nd Lt. Elwood R. Quesada, Relief Pilot
Staff Sgt. Roy W. Hooe, Mechanic

On January 1-7. 1929, they participated in the refueling duration flight of the airplane "Question Mark," at and near Los Angeles, Calif., remaining in the air a total of 150 hours, 40 minutes, 15 seconds, a period of continuous flight longer than any previous flight ever accomplished.

Captain Donald L. Bruner

By his vision, initiative, courage and perseverance, he rendered exceptionally valuable services to the Government of the United States by developing and perfecting night flying equipment, thus making it possible for military and commercial planes to traverse the length and breadth of the United States during the hours of darkness.

Major William E. Kepner, Pilot
Capt. Albert W. Stevens, Scientific Observer
Capt. Orvil A. Anderson, Alternate Pilot and Scientific Observer

After reaching an altitude of 60,613 feet during the National Geographic Society - Army Air Corps Stratosphere Flight, the balloon became disabled. Under the most adverse and hazardous conditions, attempt was made to land the disabled aircraft in order to preserve the scientific records obtained. By the exercise of cool judgment and foresight under these conditions, certain scientific records were saved and the balloon was abandoned only when it was clearly evident that not to do so would prove disastrous to human life.

OTHER PERSONNEL

Capt. Ernest L. Smith, Specialist Reserve

On July 14-15, 1927, he piloted an airplane on a non-stop flight from Oakland, Calif., to the Island of Molokai, Hawaii, a distance of 2340 miles, in 26 hours, 36 minutes, thus first demonstrating the possibility of communication between the United States and the Hawaiian Islands with small commercial planes.

Col. Francesco de Pinedo, Italian Air Force

Successfully negotiated the dangers of Trans-Atlantic flight, courageously crossing the jungles of Brazil and overcoming countless other obstacles, thereby completing a journey of 25,000 miles by flying boat, in the course of which he arrived in the United States in March, 1927, by air from Rome, Italy.

Lieut. Dieudonne Costes, French Army Reserve
Lieut.-Commander Joseph Lebrix, French Navy

For aerial journey of 35,000 miles, in the course of which they arrived in the United States in February, 1928, by air, after making the first non-stop flight across the South Atlantic.

Baron Gunther von Huenefeld, of Germany
Major James Fitzmaurice, Chief of Irish Free State Air Force
Capt. Herman Koehl, German Army, Retired

On April 12-13, 1928, they succeeded in making the first westward non-stop trans-Atlantic flight from Europe to North America.

Captain Benjamin Mendez, Colombian Army

Between Nov. 23 and Dec. 30,1928, he piloted an airplane from New York City to Giradot, Colombia, a distance of 4,600 miles. By his skill, resourcefulness and courage, he linked the continents of North and South America by an aerial journey.

Glenn H. Curtiss (Posthumously)

Over a long period of years, Mr. Curtiss, by his initiative, energy and courage, rendered exceptionally valuable services to the government of the United States by experimental flights and in advancing and developing the science of aeronautics.

Wiley Post, Pilot
Harold Gatty, Navigator

For airplane flight around the world, (June 23-July 1, 1931) in 8 days, 15 hours and 50 minutes, thus not only eclipsing in time all previous world flights, but also by their intrepid courage, remarkable endurance and masterly skill materially advancing the science of aerial navigation.

Russell N. Boardman
John L. Polando

For flight, July 28-30, 1931, of 5,011-8/10 miles, non-stop, over the Atlantic Ocean from the United States to Istanboul, Turkey.

Further awards of the Distinguished Flying Cross will be listed in the next issue.

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The following-named Air Corps officers, upon the completion of their present course of instruction at the Army Signal School, Fort Monmouth, N.J., will report not later than June 30th next to stations, as follows:

First Lieut. Norme D. Frost, 2nd Lt. Clarence F. Hegy, to Selfridge Field; 1st Lts. Dudley D. Hale and Warren H. Higgins, Panama; 1st Lts. Stanley K. Robinson, Bolling Field; James F. Walsh, Scott Field; Walter C. White, Mitchel Field; 2nd Lts. W.W. Bowman, Langley Field; O.R. Deering, Barksdale Field and Wm. C. Dolan, Brooks Field.